IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1(Original). A method for error recovery in a wireless network after a collision between a transmission and some narrowband interference, wherein the transmission is decoded using a sequential decoder, the method comprising:

receiving the transmission;

decoding the transmission;

detecting the narrowband interference in the transmission;

reconfiguring a digital signal processor to take into account the narrowband interference;

backtracking over previously decoded portions of the transmission; and

decoding the transmission using the reconfigured digital signal processor.

2(Original). The method of claim 1, wherein the transmission is performed a single symbol at a time, and wherein the receiving step comprises receiving the transmission a single transmitted symbol at a time.

3(Original). The method of claim 2, wherein the first decoding step comprises:

computing a set of possible hypotheses based on the single transmission symbol;

calculating a performance metric for each hypothesis in the set of possible hypotheses; and

selecting a hypothesis corresponding to the best performance metric.

4(Original). The method of claim 3, wherein the backtracking step comprises backtracking over selected hypotheses.

5(Original). The method of claim 1, wherein the detecting step comprises detecting a burst of symbol errors.

6(Original). The method of claim 1, wherein the detecting step comprises detecting a known sequence of interference types.

7(Original). The method of claim 1, wherein the detecting step comprises detecting a known sequence of interferences at a known sequence of frequencies.

8(Original). The method of claim 1, wherein the transmission occurs over a communications channel, and wherein the reconfiguring step comprises:

obtaining a frequency response of the communications channel;

determining the narrowband interference based on the frequency response;

calculating a set of configuration coefficients based on the determined narrowband interference; and

applying the calculated set of configuration coefficients to the digital signal processor.

9(Original). The method of claim 1, wherein the backtracking step continues until the sequential decoder reaches a part of the transmission prior to the collision.

10(Original). The method of claim 1, wherein the transmissions are performed in blocks, and wherein the backtracking step continues until the sequential decoder reaches the beginning of the transmission.

11(Original). The method of claim 1, wherein the digital signal processor comprises an adaptive equalizer.

12(Original). The method of claim 1, wherein the digital signal processor comprises an adaptive equalizer and a digital filter.

13(Original). The method of claim 12, wherein the digital filter is reconfigured to filter out the narrow band interference.

14(Original). The method of claim 12, wherein the adaptive equalizer is reconfigured to compensate for changes in the channel response due to the narrow band interference.

15(Original). A radio receiver comprising:

an antenna for receiving transmissions transmitted over a communications medium;

an analog processing unit coupled to the antenna, the analog processing unit containing circuitry to filter, demodulate, and amplify a received signal provided by the antenna;

an analog-to-digital converter coupled to the analog processing unit, the converter containing circuitry to convert the filtered, demodulated, and amplified received signal from the analog processing unit into a digital bit stream;

a digital processing unit coupled to the analog-to-digital converter, the digital processing unit containing circuitry to digitally filter and adaptively equalize the digital bit stream;

a first control and information line coupled to the digital processing unit, the first control and information line providing configuration and operational information of the digital processing unit;

a sequential decoder coupled to the digital processing unit, the sequential decoder containing circuitry to decode a digital data stream from the digital bit stream; and

a second control and information line coupled to the sequential decoder, the second control and information line providing configuration and operational information of the sequential decoder.

16(Original). The radio receiver of claim 15, wherein the radio receiver receives transmissions within a frequency band of interest, and wherein the radio receiver further comprises an interference detection unit coupled to the digital processing unit and the sequential decoder, the interference detection unit containing circuitry to detect the presence of interference and errors within the frequency band of interest.

17(Original). The radio receiver of claim 16, wherein the interference detection unit is a Bluetooth transmission detector.

18(Original). The radio receiver of claim 15, wherein the radio receiver further comprises a memory coupled to the digital processing unit and the sequential decoder, the memory containing pre-computed profiles of a plurality of different types of interference and errors.

19(Original). The radio receiver of claim 18, wherein the pre-computed profiles may be loaded into the digital processing unit and the sequential decoder immediately upon detection of interference and errors.

20(Original). The radio receiver of claim 15, wherein the radio receiver further comprises a memory coupled to the digital processing unit and the sequential decoder, the memory containing a set of updated coefficients for the digital filter and the adaptive equalizer.

21(Original). The radio receiver of claim 20, wherein the set of updated coefficients for the digital filter and the adaptive equalizer is continually updated based on a measured channel response of the communications channel.

22(Original). A communications device comprising:

an antenna for receiving and transmitting transmissions over a communications medium;

a radio transmitter coupled to the antenna, the radio transmitter containing circuitry to transmit data;

a radio receiver coupled to the antenna, the radio receiver comprising:

an analog processing unit coupled to the antenna, the analog processing unit containing circuitry to filter, demodulate, and amplify a received signal provided by the antenna;

an analog-to-digital converter coupled to the analog processing unit, the converter containing circuitry to convert the filtered, demodulated, and amplified received signal from the analog processing unit into a digital bit stream;

a digital processing unit coupled to the analog-to-digital converter, the digital processing unit containing circuitry to digitally filter and adaptively equalize the digital bit stream;

a first control and information line coupled to the digital processing unit, the first control and information line providing configuration and operational information of the digital processing unit;

a sequential decoder coupled to the digital processing unit, the sequential decoder containing circuitry to decode a digital data stream from the digital bit stream; and

a second control and information line coupled to the sequential decoder, the second control and information line providing configuration and operational information of the sequential decoder.

23(Previously Presented). A communication device comprising:

an analog unit configured to process incoming signals;

an analog-to-digital converter coupled to the analog unit and configured to convert incoming signals into digital streams comprising symbols;

a decoder coupled to the analog-to-digital converter and configured to:

select a first state;

calculate a performance metric;

compare the performance metric with a predetermined threshold; and

if the performance metric exceeds the predetermined threshold, then backtrack through the symbols.

24(Previously Presented). The communication device according to claim 23, wherein the performance metric is a sum of a performance metric of a current state and a performance metric for the first state.

25(Previously Presented). The communication device according to claim 23, the decoder is further configured to:

if the performance metric is lower than the predetermined threshold, then transition to the first state.

26(Previously Presented). The communication device according to claim 25, further comprising:

select a second state.